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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/892,789

06/28/2001

Hyo-Jin Kim

053785-5022

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05/05/2004

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EXAMINER

DI GRAZIO, JEANNE A

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No. 09/892,789	Applicant(s) KIM, HYO-JIN	
	Examiner Jeanne A. Di Grazio	Art Unit 2871	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Priority to Korean Patent Application No. 2000-51876 (Sept. 2, 2000) is claimed.

Election/Restrictions

Applicant's election with traverse of Species A (claims 1-11) in Paper of February 17, 2004 is acknowledged. The traversal is on the ground(s) that (1) the election of species requirement failed to indicate that any claim was held to be generic and improperly considered the allegedly different Species of the invention and (2) “[c]laims are definitions of inventions. *Claims are never species*. Claims may be restricted to a single disclosed embodiment (i.e., a single species, and this be designated a *specific species claim*).”

This is not found persuasive for the following reasons.

(1) As pointed out in the requirement for election / restriction, Applicant “is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of **all** claims readable thereon, including any claims subsequently added.” The Examiner furthermore notes that, as noted in the requirement for election / restriction, “[u]pon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141.”

(2) Applicant notes that claims are never species and that claims are definitions of inventions. It is respectfully pointed out that restriction is based on subject matter and not claims.

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Applicant has presented subject matter (for example no light source versus a backlight versus a transmissive liquid crystal display) and as such that subject matter is appropriately restrictable.

Furthermore, it is respectfully pointed out that (1) class 349 has subclasses dedicated to specific illuminator configurations, for example backlight and front-light displays, (2) a determination as to patentability of Species A would not necessarily confirm or refute patentability of the other species, and (3) although a search of Species A may overlap in part with searches on the other species, substantial additional searching and consideration would necessarily be required to confirm or refute patentability of the remaining species.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,307,530 B1 (to Cho) in view of United States Patent 4,772,100 (to Suenaga).

As to claim 1, Cho teaches and discloses a liquid crystal display having a partitioned circuit section (Title, entire patent). With reference to Figure 1, Cho illustrates a liquid crystal panel (1) that necessarily includes upper and lower substrates and a liquid crystal layer interposed between the upper and lower substrates, a rear case (2)(Applicant's first frame) onto

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which a main printed circuit board (11)(Applicant's source printed circuit board) and a power printed circuit board (12 and 13)(Applicant's control printed circuit board) are disposed and printed circuit boards (11), (12), and (13) are laterally spaced apart from each other along a horizontal direction as per Figure 1, a front case (3)(Applicant's second frame) coupled with the rear case (2)(Applicant's first frame) such that the liquid crystal panel (1) is fixed between the rear case (2) and the front case (3), wherein the main printed circuit board (11) is mounted on the rear case (2) and is electrically connected with the liquid crystal panel (interface board, 10), and the power printed circuit board (12 and 13) is electrically connected to the main printed circuit board (11) to drive the liquid crystal panel (connect cables, 17).

Although Cho Figure 3, illustrates connect cables (17) connecting printed circuit boards 11 and 12, Cho does not appear to explicitly specify that the main printed circuit board is removable from the power printed circuit board and the rear case.

Suenaga teaches and discloses a liquid crystal display device having circuit boards extending along segment and column electrode directions (Title, entire patent). Suenaga teaches and discloses, with reference to Figure 5A, by way of non-limiting example, a plan view of a printed circuit board assembly forming part of a liquid crystal display device. Suenaga illustrates a printed circuit board assembly (3) with at least segment circuit boards (3A and 3B) and common circuit board (3C) arranged on a frame structure and laterally spaced apart from each other along a horizontal direction as per Figure 5A. Suenaga goes on to teach and disclose that when a defect is found during inspection in one of the printed circuit boards, it is only necessary to replace the particular printed circuit board having been found defective (Column 4, Lines 57-

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60) and thus repair and replacement of a defective printed circuit board can be readily accomplished.

Suenaga is evidence that ordinary workers in the field of liquid crystal display modules would have had the reason, suggestion, and motivation to remove printed circuit boards from each other and from a frame for effective repair and replacement of defective printed circuit boards.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystal display modules at the time the invention was made to modify Cho in view of Suenaga for effective repair and replacement of defective printed circuit boards.

As to claims 2-8 and 11, Cho teaches and discloses connection structures on the rear case (2)(screws and bolts, for example) that are used to affix the printed circuit boards (11, 12, 13) and liquid crystal panel (1) to the inside of the rear case (2).

It would have been obvious to one of ordinary skill in the art of liquid crystal display modules at the time the invention was made to include attaching means on the inside of a frame to affix printed circuit boards and liquid crystal display panel to the inside of the frame to prevent the printed circuit boards and liquid crystal display panel from disconnection.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,307,530 B1 (to Cho) in view of United States Patent 4,772,100 (to Suenaga) and further in view of United States Patent 5,963,287 (to Asada et al.).

As to claims 9 and 10, Cho does not appear to explicitly specify a flexible printed circuit board to electrically connect main printed circuit board and power printed circuit board and that the flexible printed circuit board is removable from the power printed circuit board.

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Asada teaches and discloses a display unit with flexible printed circuit board (Title, entire patent). Asada teaches and discloses that a flexible printed circuit board is electrically connected to a driver circuit board and contributes to a display unit that can be manufactured inexpensively and at a high yield (Column 3, Lines 35-49).

Please furthermore note that all components of a display device are essentially removable – either by a user of the device or a technician during repair of a device. Removability depends on the degree of removability – whether the component is to be removed by a user of the device or whether the component is to be removed by a technician during repair of the device.

Asada is evidence that ordinary workers in the field of liquid crystal display modules would have had the reason, suggestion, and motivation to have a flexible printed circuit board electrically connecting the main printed circuit board and power printed circuit board and that the flexible printed circuit board is removable from the power printed circuit board to contribute to a display unit that can be manufactured inexpensively and at a high yield.

Therefore it would have been obvious to one of ordinary skill in the art of liquid crystal display modules at the time the invention was made to modify Cho in view of Asada for a display unit that can be manufactured inexpensively and at a high yield as taught and disclosed in Asada.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289.

The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio

Robert Kim, SPE

Patent Examiner
Art Unit 2871


ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNICAL STAFF 2800